



## **In-situ observations of small-scale processes in the MLT at high northern latitudes**

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We present results of in-situ observations of small-scale plasma and neutral dynamical processes in the summer mesosphere/lower thermosphere (MLT) region at high northern latitudes.

Below altitudes of  $\sim 90$  km a pure neutral dynamical process, i.e. neutral air turbulence is responsible for creating of small-scale structuring in both neutral air and plasma densities. Above that heights plasma dynamical processes, e.g. plasma instabilities, create small-scale structuring in plasma constituents.

We analyze small-scale fluctuations in neutral air density, which is a passive and conservative tracer of turbulence. We also analyze small-scale fluctuations in density of different plasma species below  $\sim 90$  km heights, where plasma is also a tracer of turbulence and above that heights, where plasma instabilities strongly dominate.

We investigate whether the small-scale plasma dynamical processes can affect structuring in neutral component of the atmosphere and inquire into possible mechanisms of plasma to neutral dynamical coupling in the MLT region at high northern latitudes.